

STEM Exploration and Engagement Scholars Program; 10 Hour Project

The Ohio State University

Andrew Gotschall

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As I have expressed before, Type 1 Diabetes is my passion. When I was diagnosed with Type 1 Diabetes at the age of 14, I quickly became determined to cure it. This mission is not only for myself but also for the millions worldwide who have to carry this disease with them every day. I chose to attend The Ohio State University because I was well aware of the university's research prestige. Moreover, I chose to apply to the College of Medicine's Biomedical Science (BMS) major because of its research focus. In the fine print of the BMS major, the earliest a BMS student can begin working in their research laboratory is during the spring semester of their first year. This is because every BMS student takes a survey class during their first semester that lays the foundation for getting involved in research. Subsequently, this class also provides a principal investigator (PI) list that contains contact information for laboratories specifically looking for BMS students. If a BMS student does not decide to join their research laboratory during the spring semester of their first year, then they must join by the fall semester of their second year.

My search for my research laboratory was very unique. I did not take the typical route most BMS students take. I began searching for a laboratory back in July of 2020, months before I ever stepped foot on campus for the fall semester. Knowing I specifically wanted to do Type 1 Diabetes research, I first contacted Dr. Hsueh, the director of the Endocrinology, Diabetes, and Metabolism research center. I went almost three full months without hearing anything back from her. In the meantime, I asked multiple upperclassmen in the BMS major, my academic advisor, the vice dean of research, and my BMS program manager for help in finding a diabetes laboratory. Countless emails led me right back to Dr. Hsueh, who by the time this cycle of information gathering was over, finally responded to me. In her email reply, Dr. Hsueh forwarded me to the Type 1 Diabetes research of Dr. Gallego-Perez.

Dr. Gallego-Perez is a biomedical engineer by trade and his lab focuses heavily on nanomedicine. Using both of these interdisciplinaries, Dr. Gallego-Perez has utilized nanoparticles in a non-invasive skin treatment that can genetically reprogram cells. With this technology, Dr. Gallegos-Perez's laboratory plans to explore what applications the previously mentioned genetic treatment may have in Type 1 Diabetes. This project is set to launch in the fall of 2021. When I found this out, naturally I was highly intrigued. After many more emails, I acquired an interview with two of the lab's graduate students, which ultimately resulted in an offer to work in the Gallego-Perez laboratory. Right away, I was assigned my online training. I had plenty of time to complete the bulk of this online training before the spring 2021 semester began. In a normal scenario, I would have begun working in the Gallego-Perez laboratory on the first day of the spring 2021 semester. However, due to COVID-19, I have been fully remote at home all year and could not join the lab that soon. Therefore, I opted to join during the fall 2021 semester, ironically right when the diabetes project is set to begin. In place of the hands-on lab training I would have received this spring, I decided to take on more online training/certification classes so that I can hit the ground running once I enter the lab this fall. The training I have been doing over winter break and during this spring semester is what I have decided to make my 10-hour project.

Online training can in no way replace hands-on learning in the laboratory. However, I have made the best out of the situation I am stuck in. I was and still am very disappointed I could not be in the laboratory this semester. Regardless, it all has and will continue to work out in the long run. The online training I have taken this semester has expanded my knowledge greatly in regards to basic laboratory instruments, techniques, safety, ethics, and animal care. As one can see in my hours log sheet, I have completed well over 10 hours of online training in the last

several months. Furthermore, I have acquired a few laboratory certifications from the Institutional Animal Care and Use Committee (IACUC), and the National Institutes of Health (NIH). Additionally, I also completed the University Laboratory Animal Resources (ULAR) mouse training, which now gives me access to all rodent facilities. With all of this training done, the last thing to do was get fingerprinted and get my background check done in order to get my official College of Medicine ID. I look forward to having full access to my lab very soon.

In conclusion, as I reflect on my 10-hour project, I am disappointed that I cannot be on campus to get started with my research. However, I am grateful for the abundance of online resources Ohio State has and the ability to complete the training online. I am eager to learn/discover more and get started this fall. Although this year and this process have been a roller coaster, I am certain that my dream for a world without diabetes starts here at The Ohio State University.